ciples of construction being similar to those previously described in connection with design Fig. 5, with the exception that the second stripe in Fig. 6 is not dropped, there being no flowers used that could produce barrenness.

Fig. 7

The secondary stripes, introduced to separate the main lines of the figure, are also based on the ogee, showing three different methods of interlacing them when designs of an entwining character are desired.

Fig. 7 shows the ease with which a trailing leaf pattern can be arranged upon the base shown at Fig. 2. Spots are introduced to fill the spaces left by the outward curves of the base lines.

Fig. 8 illustrates a modifying of the ogee lines so as to produce irregular wave effects. Two of these irregular wave lines are introduced, which interlace or cross over and under each other, the space between

Fig. 8

them being filled with pinhead spots, to imitate twisted ribbon work. The ground is then ornamented by making plant forms appear to spring from underneath the ribbon effect.

Wool-like Cotton Yarns and Fabrics.

The same refers to an English invention of imitating wool effects in cotton yarns and fabrics, the latter presenting both the feel and appearance of woolen goods. This feature is obtained by spinning mixtures of cotton dyed different shades, then shrinking the yarn with caustic soda, sulphuric acid or other known agent, and subsequently manufacturing them into the desired fabrics.

TERRY PILE FABRICS.

Their Quality, Production, and Cost.

By H. Barlow.

Contents: Positive Formed Loops. Negative or Uncontrolled Pile. Three-pick Terry. Four-pick Terry. Five and Six-pick Terry. Two-pick Terry. Selection of Yarns. Warp Yarns. Filling Yarns. To Show Difference in Twist. Preparation of Warp and Filling. Sizing Terry Yarns. Manufacturing Notes. The Shed Lines. Shedding. Temples. Reeds. Terry Motions. Reed Moved. Reed Stationary.

All who have experience in cotton manufacturing agree that the question of producing a fabric of good appearance at lowest price and this with a maximum production per loom, depends mainly upon the conditions of work and material being better understood, supervised, and intelligently directed. Only in that way can quality be maintained, and production increased, without additional expense to the mill. The foregoing remarks apply more particularly to the manufacture of negative pile fabrics, for the fact that the loop is formed in an uncontrolled manner, that control in the actual formation of the loop is limited, and therefore such conditions and influencing factors have been brought into action as will compensate for positive control, and tend to the production of a satisfactory loop fabric.

The term *"terry"* denotes a fabric having a loop or uncut pile. The loop in such fabrics may be formed in either of two ways, *viz*:

(*a*) Positive or controlled.
(*b*) Negative or uncontrolled.

Positive Formed Loops.

These are made by inserting a wire in a special shed so that all threads required to loop form the top shed line, the wire being beaten up to the fell of the cloth by the reed in the usual manner. The pile threads are bound under the next pick, and into the cloth on subsequent picks. The foundation texture is produced by the ground warp and the filling. All pile threads lifted over wires are left as loops on the withdrawal of the wire. The depth of the pile is, therefore, regulated by the depth and thickness of the wires. By this method, loops can not be made on both sides of the fabric, but on the upper side only. Typical examples of this class are terry upholstery fabrics, tapestry and Brussels carpets. Cut and looped piles are frequently used for figuring purposes in the same fabric.

Negative or Uncontrolled Pile.

This method is adopted in the production of such looped pile fabrics as terry toweling, terry dress and trimming fabrics, bath mats and counterpanes; this class of negative pile fabrics only will be dealt with.

The negative pile may be formed equally on both sides of the cloth, and is always a loop pile, attempts to cut the loops having so far proved unsuccessful. The makes of cloth are referred to as 3, 4, 5 and 6 pick terries, according to the number of picks inserted per loop. Two warps (wound on separate beams) known as terry and ground warps are used.

When weaving a 3-pick terry, instead of beating up each pick in succession to its ultimate position in the cloth, the first pick is pushed forward by the reed until within a predetermined distance of the fell of the cloth (about $\frac{3}{8}$") according to the length of loop required, the reed being controlled so that a complete

beat-up does not take place. Meanwhile, the terry harnesses change and a shed is formed for the second

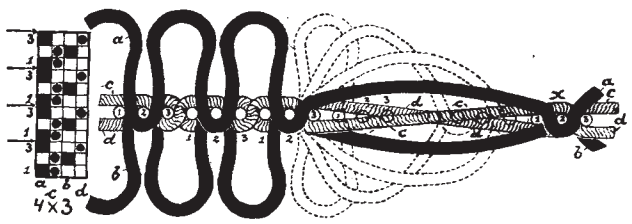


Fig. 1

pick, which is pushed forward and left close to the first pick. Both pile and ground harnesses change now for the third shed, the shuttle is passed through, and the reed now moves forward the third pick, until the latter is in contact with the second and first picks, and then drives all three picks forward to their final position in the cloth.

On referring to the 3-pick section (see Fig. 1.) it will be seen that a maximum interlacing "up, down, up," and *vice versa,* has been given to the terry warp, and a minimum interlacing "up, up, down," and *vice versa,* has been given to the ground warp.

The terry warp beam is lightly but carefully weighted so as to restrain the free delivery of the warp, and at the same time to regulate the length of loop or times terry. The ground warp is subjected to as high a tension as is practical without interfering with shedding and picking. The result is that the picks are caused to nip the light-tensioned terry threads, and to slide along the taut ground warp, bringing forward the terry threads, and as the latter bridge over the space from the fell of cloth to the first pick, and cannot move forward at the fell, they move more or less readily outwards, up or down, forming a row of loops along the cloth fell.

Three-pick Terry.

Fig. 1 shows the weave plan and the interlacing of a 3-pick terry weave, forming loops on each side of the cloth. Three picks are shown in position for

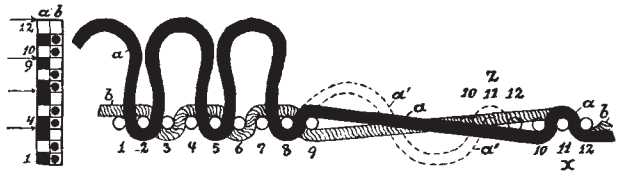


Fig. 2

a beat-up at *x*. The *dotted* lines show the position assumed by the terry threads *a* and *b* as the three picks (*x*) are moved forward during the beat-up of the lay.

It is important to notice that the terry threads (as

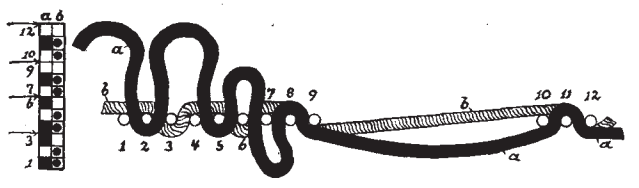
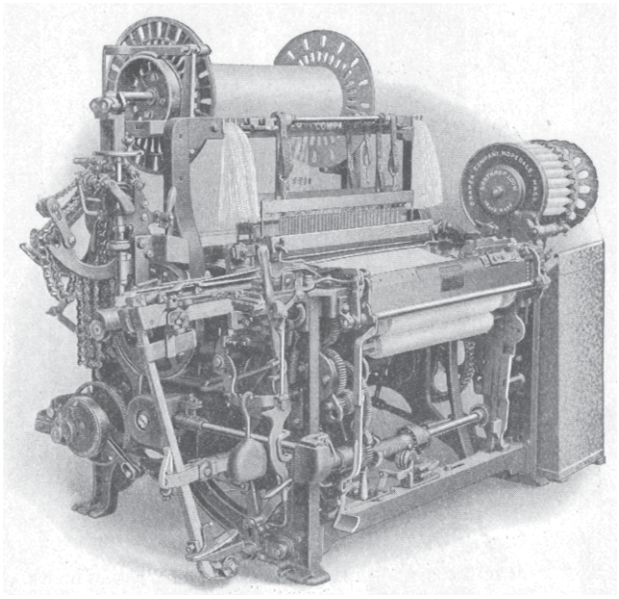


Fig. 3

shown in *black*) bridge over the space from the last beat-up to the first non-beat-up pick, and that the ground warp-threads *c* and *d* (shown *shaded*) change position, and cross from above and under the last beat-up pick, to under or above the first non-beat-up pick.

The weave, corresponding with the section, is given at the left of the latter, repeating on 4 warp-threads and 3 picks. The interlacing of the terry warp *a* and *b* is shown by *full* type and that of the ground warp *c* and *d* by *dot* type. *Arrows* on the weave indicate the beat-up of the reed, the weave repeating on 4 warp-threads and 3 picks.

Fig. 2 shows the interlacing (of part of a weave and its loop formation) for a fabric having terry on one side, with ground on the back. The terry thread, shown in weave and diagram of interlacing in *black* (*a*), is made to change so that it may also form terry



The Northrop Turkish Towel Loom.

on the underside of the cloth as shown by *dotted* lines a^1. It will be observed from the diagram that it has crossed, instead of bridged over the space. The *dotted* lines a^1 indicate the position which the terry thread assumes during the beating-up of the three picks 10, 11 and 12, as shown at *x*, driven into position shown at *z*. Thread *b*, shown *shaded* in diagram and in *dot* type in weave, is the ground warp. 1 to 12 are the repeat of the picks in weave and diagram.

Fig. 3 shows portion of the weave and diagram of the last three picks beaten up; instead of a full loop, half of the loop is shown above and the other half below. The loop is caused to form more above than below or *vice versa,* according to the position of the cloth fell in relation to the first, second and third pick, at the moment beating-up takes place, or whether the fell of the cloth is above or below normal. If the terry thread is over the last beat-up pick, and under the first non-beat-up pick, the tendency is for the loop to form more on the upper side of the cloth. Terry warp *a* in weave and diagram is shown in *black*; ground warp *b* in the weave is shown by *dot* type, and in the diagram *shaded.*

(To be continued.)